

Preliminary

Basics of Radio Astronomy for the Goldstone-Apple Valley Radio Telescope



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Basics of Radio Astronomy

for the

Goldstone-Apple Valley

Radio Telescope

Prepared by

Diane F. Miller

Advanced Mission Operations Section

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Preface

In a collaborative effort, the Apple Valley (California) Science and Technology Center, the Apple Valley Unified School District, the Jet Propulsion Laboratory, and NASA have converted a 34-meter antenna at NASA's Deep Space Network's Goldstone Complex into a unique interactive research and teaching instrument available to classrooms throughout the United States, via the Internet.

The Goldstone-Apple Valley Radio Telescope (GAVRT) is located in a remote area of the Mojave Desert, 40 miles north of Barstow, California. The antenna, identified as DSS-12, is a 34-meter diameter dish, 11 times the diameter of a ten-foot microwave dish used for satellite television reception. DSS-12 has been used by NASA to communicate with robotic space probes for more than thirty years. In 1994, when NASA decided to decommission DSS-12 from its operational network, a group of professional scientists, educators, engineers, and several community volunteers envisioned a use for this antenna and began work on what has become the GAVRT Project.

The GAVRT Project is jointly managed by the Science and Technology Center and the DSN Science Office, Telecommunications and Mission Operations Directorate, at the Jet Propulsion Laboratory.

This workbook was developed as part of the training of teachers and volunteers who will be operating the telescope. The students plan observations and operate the telescope from the Apple Valley location using Sun workstations. In addition, students and teachers in potentially 10,000 classrooms across the country will be able to register with the center's Web site and operate the telescope from their own classrooms.

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